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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,994	08/02/2001	Rui Xie	D-6400 CIP	8016

7590 12/15/2004  
Crompton Corporation  
Benson Road  
Middlebury, CT 06749

EXAMINER

SERGEANT, RABON A

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

09/919,994

### Applicant(s)

XIE ET AL.

### Examiner

Rabon Sergent

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-12 and 14-31 is/are pending in the application.
- 4a) Of the above claim(s) 14-26 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12, 27, and 29-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

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1. Claims 1-5, 7-12, 27, and 29-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Adequate support has not been provided for the claims, as amended.

Firstly, support has not been provided for the claimed basis for the weight percent of unreacted diisocyanate monomer. Also, it is unclear that support exists for applicants' "exclusively" amendment.

Secondly, within claim 1, support has not been provided for treating the residual diphenylmethane diisocyanate as claimed. As drafted, steps A) through D) of claim 1 treat the residual monomer that remains after the initial monomer has been reacted to form a prepolymer; however, the specification only provides support for treating the initial monomer in the manner claimed. Note that "the diphenylmethane diisocyanate monomer" within line 4 of the claim refers to the residual monomer within lines 1 and 2 of the claim.

Thirdly, within claims 5 and 27, the claims specify a process wherein the unreacted or excess monomer is treated by dissolution within solvent and reaction with a polyol; however, this process of treating the unreacted or residual monomer is not supported by the specification. It is noted that the claims specifically state that the unreacted or excess monomer is removed by the recited process steps.

Lastly, despite applicants' response, support for amending the molecular weight of the high molecular weight polyol to be number average molecular weight has not been found within

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at page 14, lines 3-4 of the specification. Page 14, lines 3-4 of the specification reads, "were only used for aliphatic diisocyanates that generally have low boiling points and provide prepolymers having greater thermal stability than those provided by aromatic".

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 5, 7-12, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Schnabel et al. ('171).

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Patentees disclose prepolymers having isocyanate monomer contents of less than 0.05 percent. Furthermore, patentees disclose reactants that meet those claimed. See abstract and columns 1-3.

Despite applicants' response, Schnabel et al. disclose methylene-bis (4-phenyl) isocyanate at column 1, line 64. Methylene-bis (4-phenyl) isocyanate is diphenylmethane diisocyanate.

4. Claims 5, 9-13, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Dunlap et al. ('442).

Patentees disclose prepolymers having isocyanate monomer contents that meet applicants' claimed amounts. Furthermore, the reference discloses that the prepolymers may be derived from MDI. See abstract and columns 2-5 within Dunlap et al.

5. Claims 5, 7-12, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosenberg et al. ('193).

Patentees disclose prepolymers having isocyanate monomer contents that meet applicants' claimed amounts. Furthermore, the reference discloses that the prepolymers may be derived from MDI. See abstract and columns 2-6 within Rosenberg et al.

6. Claims 27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schnabel et al. ('171) or Dunlap et al. ('442) or Rosenberg et al. ('193), each in view of Rizk et al. ('996) or Lander ('473).

As aforementioned within paragraphs 9-12, the primary references disclose polyurethane prepolymers having diisocyanate monomer contents that meet applicants' claimed monomer contents that are derived from diphenylmethane diisocyanate.

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7. The primary references are silent regarding the reaction of the prepolymers with blocking agents to yield blocked isocyanate group containing prepolymers; however, the blocking of diphenylmethane diisocyanate derived prepolymers with conventional blocking agents, such as those claimed, to yield storage stable prepolymers was known at the time of invention. This position is supported by the disclosures and examples of Rizk et al. and Lander. Therefore, since the blocking of MDI prepolymers to obtain storage stable reactants and/or one-component coating or sealing compositions was a conventional practice at the time of invention, the position is taken that it would have been obvious to block the prepolymers of the primary references for the same reasons.

8. Product by process claims are examined as product claims. The process limitations are given patentable weight only if it has been established that the process causes the product to have different properties from the prior art product. In response, applicants have argued that the process limitations cause the instant products to have different properties from the prior art products, and have referred to the results set forth within Table 7 of the specification. The results within Table 7 have been considered; however, they in no way provide support for applicants' position. It is not seen how any meaningful conclusions can be drawn from the data of Table 7 since it appears that a MDI system is being compared to a TDI system. Furthermore, the TDI comparative system is not representative of the MDI compositions of the prior art. Lastly, applicants argue that none of the prior art discloses how a prepolymer based upon MDI can be obtained having a residual MDI content of less than 0.3%. This argument is not understood; Schnabel et al., Dunlap et al., and Rosenberg et al. each disclose residual monomer contents below 0.3%.

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9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.

  
RABON SERGENT  
PRIMARY EXAMINER

R. Sergent  
December 13, 2004